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This application pertains to a novel process for preparing UV-transparent pressure-sensitive adhesives, having a UV transparency at 300 nm of more than 95%. In the process, an acrylic copolymer composition is formed having a weight average molecular weight of less than 300,000 g/mol, and from 2 to 20% by weight of a silicate filler having a maximum particle diameter of 50 nm is mixed into the copolymer composition.

Applicants have discovered that, by keeping the weight average molecular weight of the copolymer composition at less than 300,000 g/mol and the maximum particle diameter of the silicate filler at 50 nm, the UV transparency at 300 nm of the composition is more than 95% (page 1, last paragraph) and the difficulties encountered by the prior art are avoided. Specifically, in the prior art, the inclusion of fillers in the adhesives resulted in adhesives having relatively low cohesion, since the fillers reduced the transparency and interfered with UV cross-linking (see the discussion of Reference Example 3 on page 17). On the other hand, the complete absence of fillers also resulted in low cohesion of low molecular weight adhesives. See the discussion of Examples 1-4 vs. Reference Examples 1 and 2 in the paragraph following Table 1 on page 17.

The present invention overcomes the deficiencies of the prior art adhesive compositions.

Claims 1 to 9 are pending.

Claims 1-8 stand rejected under 35 U.S.C. 103(a) as obvious over Husemann et al (US 6,720,399) or Husemann et al (US 6,958,186).

The inventive entity of Husemann et al (US 6,720,399) is the same as that of the present application. In view of this, it appears that Husemann et al (US 6,720,399) does not constitute prior art under any provision of 35 USC 102, and the rejection of Applicants' claims as obvious over this reference should accordingly be withdrawn.

Husemann et al (US 6,958,186) concerns a double-sided adhesive tape, having layers A and C of adhesive, on a polyurethane carrier B.

Adhesive A is a heat-activatable adhesive, which could be a poly(meth)acrylate (col. 2, line 58). Nowhere is any molecular weight given for this adhesive, and nowhere is it taught or suggested that any filler could be used with the heat-activatable adhesive. That part of the reference that pertains to layer A cannot therefore be seen as even remotely suggesting Applicants' novel process.

Adhesive C can also be a poly(meth) acrylate (col. 8, lines 5-15).

However the molecular weight of Adhesive C, given as number average molecular weight (M_n), is preferably 100,000 to 500,000. This range does not suggest anything about Applicants' weight-average molecular weight (M_w), which must be less

than 300,000 g/mol.

As indicated above and disclosed in Applicants' specification, the claimed molecular weight range, together with the specific silicate filler claimed, make it possible to produce a UV-transparent pressure sensitive adhesive which has a UV transparency at 300 nm of more than 95%. Nothing in Husemann '186 teaches or suggests that anything about molecular weight or silicate filler characteristics could enable such a high UV transparency.

A particular parameter must first be recognized as a result-effective variable before a determination of an optimum range might be characterized as routine experimentation (MPEP § 2144.05 (II)(B)). There is nothing in this reference that would indicate that a molecular weight below 300,000, when combined with 2-20% of a silicate filler having a maximum particle diameter of 50 nm could produce a pressure sensitive adhesive having a UV transparency of 95%.

Molecular weight is not taught or suggested to be a result-effective variable by the Husemann '186 reference, and Applicants' specific molecular weight cannot be seen as obvious over this reference.

Husemann'186 teaches that it is "possible optionally" to add fillers, and that it is preferable to raise the internal strength by crosslinking. Husemann does not teach or suggest, however, that a layer of adhesive having a filler can be UV crosslinked; and certainly does not teach or suggest any way that a layer of adhesive could have a

certain kind of filler and still have a UV transparency of 95%.

More specifically, Husemann teaches that it is possible to include a filler with the adhesive. Such a filler-containing filler is not taught anywhere in Husemann to be UV crosslinkable. Those skilled in the art know that the presence of filler in an adhesive interferes with UV crosslinking, and therefore would not expect such an adhesive to have a high UV transparency.

Indeed, none of Husemann's Examples show an adhesive layer C produced with any fillers, and subsequently UV crosslinked.

Moreover, there is nothing in Husemann that teaches or suggests any size range for any filler, let alone a silicate filler. There is absolutely nothing in Husemann that would lead those skilled in the art to a silicate filler having a maximum particle diameter of 50 nm. As with the molecular weight range, the particle diameter cannot be seen as a result-effective variable unless there is something in the reference that recognizes it as such.

Husemann also does not teach or suggest anything at all about the amounts of any fillers that could be used, especially in an adhesive that is intended to be UV crosslinked.

Nothing in the Husemann reference could possibly lead those skilled in the art to a process for preparing a pressure-sensitive adhesive that has a molecular weight of

less than 300,000, 2 to 20% of a silicate filler having a maximum particle diameter of 50 nm, and a UV transparency of more than 95%.

Applicants' claims cannot therefore be seen as obvious over either Husemann reference, and the rejection of claims 1-9 under 35 U.S.C. 103(a) as obvious over Husemann et al (US 6,720,399) or Husemann et al (US 6,958,186) should accordingly now be withdrawn.

Claims 1-9 stand provisionally rejected for obviousness type double-patenting over claims 1-8 of co-pending Application No. 10/745,305. It is respectfully requested that further action on this provisional rejection be deferred until it can be determined which application will be allowed first, at which time an appropriate Terminal Disclaimer will be considered.

In view of the present remarks it is believed that claims 1-9 are now in condition for allowance. Reconsideration of said claims by the Examiner is respectfully requested and the allowance thereof is courteously solicited.

CONDITIONAL PETITION FOR EXTENSION OF TIME

If any extension of time for this response is required, Applicants request that this be considered a petition therefor. Please charge the required petition fee to Deposit Account No. 14-1263.

ADDITIONAL FEE

Please charge any insufficiency of fee or credit any excess to Deposit Account
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Respectfully submitted,
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By 
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Date March 27, 2006

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